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ABSTRACT

This study was conducted to analyze levels and areas of stress of professionals in selected service professions and to establish national norms of stress for these professions. The 60-item Tennessee Stress Scale-R (TSS-R) is a work-related stress inventory for professionals which provides a measure of stress in three areas: stress producers, stress coping mechanisms, and stress symptoms. The TSS-R was administered to 800 professionals working in the areas of education, medicine, government service, industry, business, and counseling. Demographic data were included to analyze the effects of gender, geographic region, age, number of hours worked, number of children, and number of pets. The results revealed various patterns. Education professionals were significantly higher than business and government service professionals on the producers and symptoms subscales. Females had an average score of 8.46 for producers while males had a score of 7.17. With symptoms, males had a score of 6.25 while females averaged 8.1. The most prevalent symptoms were fatigue (83%), nervousness (75%), and irritability (72.4%). In terms of symptoms, females reported less excessive smoking, more fatigue, and more headaches than did males. Regional differences also emerged with scores in the western region of the country being significantly lower than scores from the east. (The Tennessee Stress Scale-R is appended.) (Author/NB)

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Abstract

Evaluation of Stress Levels of Professionals

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The 60 item Tennessee Stress Scale-R (TTS-R) by McWilliams and Schnorr is a work related stress inventory for professionals. The TSS-R provides a measure of stress in three areas: Stress Producers, Stress Coping Mechanisms and Stress Symptoms. The inventory includes demographic information as well as self-perceived levels of stress. The purpose of this study was 1) to analyze levels and areas of stress of professionals in selected service professions and 2) to establish National norms of stress for these professions. The TSS-R was administered to the following groups of professionals (N=800) (1) Education, (2) Medical, (3) Government Service, (4) Industry, (5) Business and (6) Counselors. Demographic data was included to analyze 1) Gender, 2) Regional or geographical differences, 3) Age, 4) Number of hours worked, 5) Number of children and 6) Number of pets. Various patterns emerged as the data was collected and analyzed. Education professionals were significantly higher than Business and Government Service on the Producers and Symptoms subscale (p. 05). Females had an average score of 8.46 for Producers while males had a score of 7.17. With symptoms, males had a score of 6.25 while females averaged 8.1. The most prevalent symptoms were fatigue (83%), nervousness (75%) and irritability (72.4%). In terms of symptoms, females reported less excessive smoking, more fatigue and more headaches. Males rarely reported nausea/stomach pains. Regional differences also emerged with scores in the western region of the country being significantly lower than easterners (p. 05). The TSS-R can be used to evaluate stress in different professions on three subscales. National norms available at this time, indicate significant differences between various professions, as well as significant differences on several demographic variables including gender and geographical region.

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Evaluation of Stress Levels of Professionals

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In recent years, much attention has been given to the role of stress producers and the ways in which individuals handle stressful events. (Selye, 1983; Holmes and Rahe, 1967; Eysenck, 1983; Rosenman et al. 1982, Forbes, 1979; Davies, 1981). However, little research has focused on coping with stress in the work place per se. The present scale is a result of the author's background and interest in identifying stressors specific to administrative and professional roles, and developing cognitive behavioral intervention strategies for stress management.

Dr. Hans Selye (1976, p. 74) has defined stress as the "non-specific response of the body to any demand made on it." He has identified basically two types of stress, distress and eustress. Distress is harmful to the body, and eustress is a pleasant type of stress that is beneficial to the body. Using Dr. Selye's "fight or flight" model of handling stress, both positive and negative coping mechanisms were considered in the development of the present Stress Scale.

Development of the Scale

A pilot study (McWilliams, 1980) was funded by Tennessee Technological University to study the "Effects of Stress onWomen in Management." In 1980 McWilliams, Folio and Rackard developed the original Tennessee Stress Scale for Women in Management. At that time women were just beginning to be placed in administrative and semi-management positions in sufficient numbers to warrant investigation into stress producers specific to this new role for women. It was hoped that an instrument could be constructed to use in the identification of stress related to managerial positions. The idea for the development of the scale came out of a pilot study funded by Tennessee Technological University to study the "Effects of Stress on Women in Management."

The authors reviewed the current literature on stress and anxiety and looked at the stress producers reported by women in the pilot study. A total of 160 items dealing with stress producers, coping mechanisms, and symptoms were identified through this process. Along with Selye's definition of stress, these were submitted to professional colleagues who served as judges. The judges were asked to designate the items indicative of management-related stress for women according to the definition. One hundred and twenty-

five items on which there was 60 percent agreement or better were selected for the original scale.

These 125 items were administered to 50 graduate students in psychology asking for feedback on clarity of expression and relevance to the workplace in addition to the response. The results of the graduate student responses to the scale items ranged from low stress to high stress producers with a mean of 23, low to high coping mechanisms mean of 15, and low to high number of symptoms mean of 7. The feedback on item clarity and relevance resulted in some modifications in the wording of the items.

The next step was the administration of the instrument to women in management throughout the United States through the cooperation of The Tennessee Commission on the Status of Women, the American Personnel and Guidance Association, and the American College Personnel Association. A total number of 47 responded to the original scale. A wide range of managerial position was represented - from head resident in a dormitory, and heads of departments, to Deans of Colleges and Graduate Schools. The mean number of stress producers reported by this group was 22 out of a possible 57. The mean number of negative coping mechanisms reported was 12.4 out of a possible 46. The

mean number of stress symptoms reported was 6 out of a possible 22. Only three stress symptoms were reported by more than 50 percent of the women surveyed: (1) nervousness, 72 %; (2) fatigue, 89%; and (3) headaches, 53%.

The original sample of women in management were also administered The Tennessee Self Concept Scale (Fitts, 1965) and The Eysenck Personality Inventory (Eysenck and Eysenck, 1968) which were used as measures of concurrent validity.

Table 1 presents the significant correlations between The Tennessee Stress Scale and The Tennessee Self Concept Scale.

Insert Table 1 About Here

Negative correlations were found between the TSS Stress Producers and the TSC Positive Scores on identity and behavior, as well as between the TSS Stress Producers and TSC Personal Self, Family Self, and Social Self. In addition, negative correlations for TSS Stress Copers with positive scores on the TSC Family Self were found.

High positive correlations (.80) were found on all three variables of the TSS, stress producers, coping

mechanisms, and symptoms, and the variable of neuroticism on the Eysenck Personality Inventory.

Revision 1

Encouraged by the concurrent validity findings, the present authors decided to revise and refine the instrument further. In a pilot study at the University of Arizona, selected female faculty were asked for feedback on items the respondents found most relevant, those they did not find particularly relevant, and which items were unclear or ambiguous. An item analysis was used in conjunction with the feedback from the respondents in condensing the scale down to the most common or important symptoms, producers and coping mechanisms in each category.

Items from other surveys such as the Human Services Survey, the Hopkins Symptom Checklist, and Holmes and Rahe's Social Readjustment Rating Scale (19??) were studied and proved to be useful in the initial revision.

Subsequently, the scale has undergone two more revisions. Students in graduate level psychology classes (n = 100) were asked to respond to the items as the first revision was being piloted. Male students were included this time to check for sex differences. Both males and females were asked to give feedback on

items they found most relevant, those they did not find particularly relevant, and to identify which items were unclear or ambiguous. A somewhat surprising finding was that women and men experienced similar stress producers on the job, used similar coping mechanisms, and experienced many of the same symptoms. It appeared that, in the time span of the three years since the original scale was constructed, women had moved into managerial and professional roles in large numbers and the stress they were experiencing was not so different from that experienced by their male counterparts. This led the present authors to reword the items in such a way that they could represent stress experienced by either women or men, or both. This resulting TSS-R (McWilliams, 1983) consisted of 72 items, retaining 7 of the original stress producers, 7 of the original stress coping mechanisms, and 15 of the original symptoms. Thus, a total of 29 of the original 125 items appeared on the first major revision of the Tennessee Stress Scale (TSS-R) in 1982.

Revision 2

The TSS-R (1983 version) was researched extensively. Results of an early item analysis eliminated six items reducing the total number of items to 66. At this time,

a test-retest reliability study was conducted (n = 152) of the second revision. Results indicated .88 reliability on all three scales: Producers, Coping Mechanisms, and Symptoms.

All variables on the TSS-R were correlated highly with the Neuroticism scale of both the Eysenck Personality Inventory (.89) and the Eysenck Personality Questionnaire (.83 to .89), and also the Psychoticism Scale of the Eysenck Personality Questionnaire (.81 to .89). (See Table 2)

Insert Table 2 About Here

This second revision was administered to graduate students and professionals in the fields of nursing, counseling, and teaching (n = 294). Again, the researcher asked for feedback as to the relevance of the items and vocabulary. Six additional items were eliminated as a result of this feedback leaving 60 items in the 1984 revision. The authors decided to equalize or balance the numbers of items on each subscale. Therefore, only the items with the highest reliability and validity were retained.

This final 1984 revision of the Tennessee Stress Scale-Revised appears to be a much more workable

revision and the scoring has been simplified. The first 20 items are scored as producers, the second 20, items 21-40, are scored as stress coping mechanisms, and the last 20 items, 41-60, are scored as symptoms. In addition, a total stress score is obtained by adding the three sub-scores. Twenty of the items have been retained in their original form from the earliest scale (TSS, 1980).

Insert Table 3 About Here

Table 3 presents the 60 items on the final revision of the TSS-R. Eustress producers, items 1 and 2 are considered positive and scored with a no answer. Under coping mechanisms, items 26, 27, 28, 29, 32, 34, 35, 37, and 39 are also considered positive and scored with a no response. All other items are scored with a yes response.

Normative characteristics of the New Scale TSS-R (1984) are available on the following professional groups: Business, Teachers in Higher Education, Government Service, Industry, Education Professionals, Medical Education, High School Special Education Teachers, Mental Health Professionals, Social Workers, and Corrections Counselors. These norms can be used as

comparative data when administered to groups and individuals.

The final revision can be useful as a counseling or consultant tool for the practitioner. Making an assessment of stress using the self-report TSS-R can be a valuable aid in individualizing by group or individual stress reduction strategies and stress control.

Insert Table 4 and Table 5 About Here

The authors are in the process of gathering more normative data on groups throughout the United States. It is hoped that sufficient normative data will have been gathered by the end of 1985 to include groups from a wide variety of professions. The authors will make available profiles of stress producers, stress coping mechanisms, and stress symptoms for each professional group. A further analysis will be made to identify those specific producers within each work setting. This should provide useful information to the practitioner.

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TABLE 1

Correlations Between TSC and Variables 1 and 2 of TSS

Tennessee Stress Scale (TSS)	Tennessee Self Concept Scale (TSC)	r	p
Variable 1			
Stress Producers	Identity	-.57	.001
	Behavior	-.51	.004
	Total Positive Score	-.55	.002
	Personal Self	-.55	.002
	Family Self	-.56	.001
	Social Self	-.50	.004
Variable 2			
Stress Copers	Identity	-.81	.001
	Behavior	-.61	.001
	Total Positive Score	-.61	.001
	Family Self	-.58	.001

Table 2

Correlations Between TSS-R and Eysenck Scales

	TSS-R			
	Stress Producers	Stress Coping Mechanisms	Stress Symptoms	Total Stress Score
EPI Extraversion	.17	.13	.30	.29
EPI Neuroticism	.89	.89	.89	.89
EPI-Lie	.24	.12	.47	.22
EPQ Psychoticism	.82	.86	.81	.89
EPQ Extraversion	.17	.22	.29	.23
EPQ Neuroticism	.88	.88	.83	.83
EPQ-Lie	.26	.39	.45	.17

TENNESSEE STRESS SCALE - R

TSS-R

Work Related Stress Inventory
For Professionals

Jettie M. McWilliams, Ed.D.

Name_____ Age____

Sex ___M ___F

Marital Status: Single___ Married___ Number of Pets___

Children: Number___ Ages_____

STRESS SCORE

Stress (P)___

Stress (C)___

Stress (S)___

Please answer the following:

Your job title: Staff___ Mid-Level Management___ Executive___

Avg. hours worked per week:_____

Occupational Classification: Business___ Education___ Media___ Government Service___

Medical___ Industry___ Other___

Number of women in your organizational group____

Number of men in your organizational group_____

Related to my job, I would say my overall level of stress is: Mild___ Moderate___ Severe___

Directions:

This inventory contains statements dealing with stress that are related to your work. Please read each statement carefully and respond as it usually relates to you. Mark your answers under the columns headed "Yes" or "No".

	YES	NO
1. I compare my job performance with others in my organization	( )	( )
2. I take on more responsibility to prove I am as capable as others	( )	( )
3. I am overly critical of my performance in my job responsibilities	( )	( )
4. I feel my subordinates resent my authority	( )	( )
5. My position forced me to develop a more forceful-aggressive role	( )	( )
6. I assume a nurturing leadership role	( )	( )
7. Higher levels of administration reinforce me for my work	( )	( )
8. My colleagues do no express sufficient appreciation for my hard work done in their behalf	( )	( )
9. Meeting constant deadlines at work causes me stress	( )	( )
10. I feel vulnerable in my work in that my willingness to take high risk tasks may backfire	( )	( )
11. My personal limitations on the job cause me stress	( )	( )
12. The idea that I'm not O.K., learned from childhood experiences, affects my professional competencies	( )	( )
13. I feel that no matter how hard I try at work, I will not receive the recognition I deserve	( )	( )
14. My professional colleagues assume that I will take a passive leadership role	( )	( )
15. The frequency of interruptions while performing job tasks causes me frustration constantly	( )	( )
16. My position makes me feel socially isolated	( )	( )
17. Unclear job responsibilities cause me undue stress	( )	( )
18. I lack experience in major decision making responsibilities	( )	( )
19. Being placed in a leadership role without authority creates a problem for me	( )	( )
20. I underestimate my skills and abilities	( )	( )
21. When I experience stress at work, I set realistic expectations for myself	( )	( )
22. When work becomes difficult, I feel I have "fallen short"	( )	( )
23. When I am under pressure at work, I express more hostility	( )	( )
24. When I am under stress, I am more impatient with others	( )	( )
25. When I am stressed, I avoid job tasks which are frustrating	( )	( )

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	YES	NO
26. When I have work pressures, I am able to transcend my stress by seeing the humorous aspects and laugh	()	()
27. When I am under stress at work, I take time for myself	()	()
28. When work pressures increase, I make it a point to get sufficient amounts of rest and sleep	()	()
29. When under stress, I excercise regularly	()	()
30. When I am under stress at work, I become more depressed and withdrawn	()	()
31. When pressure is great at work, I find that my interpersonal relationships deterlorate	()	()
32. When under stress at work, I turn problems into opportunities	()	()
33. When things are stressful at work, I overreact to criticism	()	()
34. When work is stressful, I am able to identify factors that cause me stress	()	()
35. When personal conflicts arise, I prefer to directly confront people	()	()
36. When problems arise, I tend to blame others	()	()
37. When under pressure, I accomplish more	()	()
38. When under stress, I seek support or advice from a close friend	()	()
39. When difficulties arise, I allow time to resolve the issue	()	()
40. When under stress, I find a cocktail before dinner is relaxing	()	()

When work is stressful, I have experienced the following:

	YES	NO
41. High blood pressure	()	()
42. Excessive smoking	()	()
43. Skin irritations	()	()
44. Decrease in sexual interest	()	()
45. Diarrhea	()	()
46. Weight gain	()	()
47. Nausea	()	()
48. Weight loss	()	()
49. Nervousness	()	()
50. Fatigue	()	()
51. Stomach pains	()	()
52. Ulcers	()	()
53. Headaches	()	()
54. Backaches	()	()
55. Pain or discomfort which is medically undiagnosed	()	()
56. Tightness or soreness of muscles	()	()
57. Professional burnout	()	()
58. Allergies	()	()
59. Sleep problems	()	()
60. Irritability toward others	()	()

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Table 4

Population Means and Standard Deviations for TSS-R (N=156)

	μ	s
Producers	8.16	3.371
Copers	7.846	3.376
Symptoms	7.641	3.85
Total	23.391	10.595

Table 5

Most Frequently Reported Symptoms on TSS-R (N=517)

Percentage	Symptoms
83.3%	fatigue
75.0%	nervousness
72.4%	irritability
62.8%	headaches
60.3%	professional burn-out
51.3%	undiagnosed pain
50.6%	sleep problems

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75.0%	nervousness
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62.8%	headaches
60.3%	professional burn-out
51.3%	undiagnosed pain
50.6%	sleep problems